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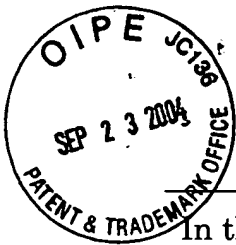
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the **PATENT APPLICATION** of:

Kaewell, Jr. et al.

Application No.: 09/356,845

Confirmation No.: 8408

Filed: July 19, 1999

For: PLURAL SUBSCRIBER SYSTEM
UTILIZING SYNCHRONIZED
TIMESLOTS ON A SINGLE
FREQUENCY

Group: 2631

Examiner: Tesfaldet Bocure

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APPEAL BRIEF

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Sir:

Further to the July 19, 2004 Notice of Appeal (received by the USPTO on July 21, 2004), Applicant hereby submits this Appeal Brief.

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(1) REAL PARTY IN INTEREST

The real party in interest is the assignee of record, InterDigital Technology Corporation.

(2) RELATED APPEALS AND INTERFERENCES

No appeals or interferences are known which will directly affect or be directly affected by or have a bearing on the Board's decision in the present appeal. However, an Appeal under Appeal No. 2003-0660 occurred for an application (application no. 09/791,259, filed February 23, 2001, now U.S. Patent No. 6,711,223 B2) which was a continuation of this application.

(3) STATUS OF THE CLAIMS

Claims 11, 13-23, 25-27 and 29-32 are the subject of this appeal and are attached in Appendix A. No other claims are pending. Claims 11, 13-23, 25-27 and 29-32 were finally rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 3,879,581 (Schlosser et al., hereafter "Schlosser").

(4) STATUS OF THE AMENDMENTS

No Reply was filed after the May 18, 2004 Final Action.

(5) SUMMARY OF THE INVENTION

The present invention provides a telecommunication station and associated system, where the telecommunication station communicates with a base station and a secondary station using wireless transmissions. Application, page 12, lns. 18-26. The base station communicates with a plurality of stations. Application, Figures 10 and 11. The telecommunication station has a transmitter, which transmits telecommunication station synchronization information including the assignment of fixed periodic time slots to a plurality of subscriber units on a selected frequency. Application, page 6, ln.

12 to page 7, ln. 7 and page 14, lns. 6-7. At least two fixed periodic transmit time slots are for transmission from said telecommunication station and at least two fixed periodic reception time slots are for reception by said telecommunication station. Application, Figures 10 and 11. The telecommunication station synchronization information enables a transmit and receive timing of the secondary station to be synchronized to the telecommunication station. Application, page 8, ln. 9 to page 10, ln. 16. The assignment of time slots results in each of the plurality of subscriber units being assigned a separable slot. Application, Figures 10 and 11 and page 14, lns. 6-7. The transmitter also transmits a signal carrying information received from the base station on the selected frequency in a first assigned transmit slot and carrying information received from the secondary station on the selected frequency in a second assigned transmit slot. Application, Figures 10 and 11 and page 12, ln. 18 to page 13, ln. 29 and page 14, lns. 6-7.

The telecommunication station has a receiver, which receives the information transmitted from the base station on the selected frequency in a first assigned reception slot and base station synchronization information from the base station. Application, Figures 10 and 11 and page 8, ln. 9 to page 10, ln. 16. A timing of the secondary station is synchronized to the telecommunication station using the telecommunication station synchronization information. Application, page 8, ln. 9 to page 10, ln. 16. The receiver receives the information transmitted from the secondary station on the selected frequency in a second assigned reception slot. Application, Figures 10 and 11. Each of the plurality of secondary stations finds the transmissions and slots assigned to that secondary station. Application, page 8, ln. 9 to page 10, ln. 16. Using the telecommunication station for communications between the base station and secondary station is transparent to the base station and secondary station. Application, page 13, lns. 5-8. The primary station and the secondary station itself detects a frame timing from received signals and aligns its transmitting frame timing accordingly. Application, page 8, ln. 9 to page 10, ln. 16.

(6) ISSUES

- (1) Do claims 11, 13-23, 25-27 and 29-32 meet the requirements of 35 U.S.C. §103(a), as being patentable in view of Schlosser?

(7) GROUPING OF CLAIMS

The claims on appeal consist of one group. Claims 11, 13-23, 25-27 and 29-32 are in that group and claim 11 is the representative claim.

(8) ARGUMENT

Background

This application (U.S. Patent Application No. 09/356,845) was filed on July 19, 1999 and claims priority to U.S. Patent Application No. 08/798,973, filed on February 7, 1997, now U.S. Patent No. 5,930,297. That patent is a continuation of Application No. 08/588,073, filed on January 17, 1996, now U.S. Patent No. 5,625,653, which is a continuation of Application No. 08/347,835, filed on December 1, 1994, now U.S. Patent No. 5,495,508. That patent is a continuation of Application No. 08/104,322, filed August 9, 1993, which is a continuation of Application No. 07/438,618, filed November 20, 1989. That application is a continuation of Application No. 07/123,395, filed November 20, 1987, now U.S. Patent No. 4,935,927.

Issue (1): Do claims 11, 13-23, 25-27 and 29-32 meet the requirements of 35 U.S.C. §103(a), as being patentable in view of Schlosser?

Schlosser discloses a spacecraft which communicates with a plurality of data terminals using a time division multiple access (TDMA) format. The Schlosser spacecraft was equated to the primary station of representative claim 11 (telecommunication station of claims 15 and 19). However, the operation of the Schlosser spacecraft and primary station as recited in the claims are totally different.

Referring to claim 11, the primary station communicates with a base station and at least one other secondary station. Figure 13 of the application illustrates such an arrangement. The Schlosser spacecraft communicates between two of its data

terminals and not a base station. Schlosser does not disclose or suggest that one of its data terminals could be replaced by a base station. Furthermore, as described subsequently, such a substitution in Schlosser would not be operable anyway.

Claim 11 recites an assignment of “n transmission fixed periodic time slots... n reception fixed periodic time slots on a selected frequency” and “transceives a duplex telephonic communication ... on the selected frequency”. Schlosser does not disclose transmitting and receiving by a station over a selected frequency. Schlosser shows in Figures 2a and 2d a separate uplink and downlink frame format. The downlink frame is referred to as being continuously transmitted. See Schlosser, col. 5, lns. 38-40. Clearly, the uplink and downlink of Schlosser are on separate frequencies and the Schlosser spacecraft does not receive and transmit over a selected frequency.

Claim 11 recites the primary station “receiving base station synchronization information from a base station, wherein a transmit and receive timing of the primary station is synchronized to the base station using the base station synchronization information”. In Schlosser, the data terminal synchronize to the spacecraft, “[the data terminal] must be synchronized to the spacecraft downlink format”, Schlosser, col. 5, lns. 65-68, and, “[u]sing the spacecraft 100 as a time reference, the beginning of each uplink frame is assumed to coincide with the beginning of each downlink frame”, Schlosser, col. 6, lns. 7-9. Accordingly, the Schlosser data terminals synchronize to the spacecraft for both the uplink and downlink. The spacecraft, clearly dictates the frame timing, see Schlosser Figures 2a and 2d, and the spacecraft of Schlosser sends information to the data terminals in a downlink synchronization and control field, see Schlosser, col. 4, lns. 54-56.

Claim 11 recites, “the base station communicating with a second plurality of stations” and “the base station transmitting the base station synchronization information”. Schlosser does not disclose a base station or for that matter a data terminal communicating with a plurality of stations. Furthermore, Schlosser does not disclose the data terminals transmitting synchronization information, especially since the data terminals synchronize their uplink and downlink timing to the spacecraft.

Claim 11 recites, “the primary station and the secondary station itself detects a frame timing from received signals and aligns its transmitting frame timing accordingly”. Although the Schlosser data terminals synchronize their frame timing to the spacecraft, the spacecraft does not synchronize its frame timing to the data terminals. The Schlosser spacecraft dictates the frame timing to the data terminals. See Schlosser, col. 5, ln. 65 to col. 6, ln. 15.

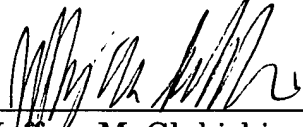
Claim 11 recites, “using the telecommunication station for communications between the base station and secondary station is transparent to the base station and secondary station”. Clearly, since all of the data terminals communicate and synchronize directly to the spacecraft, the use of the spacecraft is not transparent to the data terminals. In the present invention, the secondary station may be communicating with the base station directly or via the telecommunication station without being able to tell whether it is directly communicating with the base or telecommunication station.

(9) CONCLUSION

For the reasons stated above, pending claims 11, 13-23, 25-27 and 29-32 meet the requirements 35 U.S.C. §103(a). Accordingly, the final rejection should be reversed. After reversal, Applicant respectfully requests that the pending claims be passed to allowance.

Respectfully submitted,

Kaewell, Jr. et al.

By: 
Jeffrey M. Glabicki
Registration No. 42,584
(215) 568-6400

Volpe and Koenig, P.C.
United Plaza, Suite 1600
30 South 17th Street
Philadelphia, PA 19103
JMG

APPENDIX A
(PENDING CLAIMS OF U.S. PATENT APPLICATION NO. 09/356,845)

11. A telecommunication system using wireless transmissions, the system comprising:

a primary station communicating with a first plurality of stations, the primary station including a radio having a receiver and a transmitter wherein:

(i) said transmitter transmits primary station synchronization information including an assignment of n transmission fixed periodic time slots to a plurality of subscriber units, where n is an integer greater than 1, and n reception fixed periodic time slots on a selected frequency, said assignment of time slots resulting in each of said plurality of subscriber units assigned a separable slot;

(ii) said radio transceives a duplex telephonic communication with the plurality of stations on the selected frequency wherein:

(a) said transmitter transmits first speech information in a respective one of the n transmission time slots on the selected frequency; and

(b) said receiver receives second speech information from each of the plurality of stations in one of the n reception time slots on the selected frequency and receiving base station synchronization information from a base station, wherein a transmit and receive timing of the primary station is synchronized to the base station using the base station synchronization information; and

the first plurality of stations including:

the base station communicating with a second plurality of stations, the base station receiving from the primary station the first speech information originated from a secondary station in said respective transmission time slot and transmitting the second speech information in said respective reception time slot, the base station transmitting the base station synchronization information; and

the secondary station having:

(i) a radio receiver which receives the primary station synchronization information from the primary station and identifies the assignment of time slots and which receives from the primary station the first speech information originating from the base station in said respective transmission time slot, wherein a transmit and receive timing of the secondary station is synchronized to the primary station using the primary station synchronization information; and

(ii) a radio transmitter which transmits the second speech information in said respective reception time slot; and

(iii) each of said plurality of secondary stations finds the transmissions and slots assigned to that secondary station;

wherein using the primary station for transmissions between the base station and secondary station is transparent to the base station and secondary station, and the primary station and the secondary station itself detects a frame timing from received signals and aligns its transmitting frame timing accordingly.

13. A telecommunication system according to claim 11 wherein said primary station radio transmits an assignment of two transmission and two reception time slots.

14. A telecommunication system according to claim 11 wherein the secondary station is positioned outside an operating range of said base station at a remote location whereat direct communication with said base station can not be made.

15. A telecommunication station for communicating with a base station and a secondary station using wireless transmissions, the base station communicating with a plurality of stations, the telecommunication station comprising:

a transmitter which:

(i) transmits telecommunication station synchronization information including the assignment of $2n$ fixed periodic time slots to a plurality of subscriber units, where n is an integer greater than 1, on a selected frequency, n fixed periodic transmit time slots for transmission from said telecommunication station and n fixed periodic reception time slots for reception by said telecommunication station, the telecommunication station synchronization information enabling a transmit and receive timing of the secondary station to be synchronized to the telecommunication station, said assignment of time slots resulting in each of said plurality of subscriber units assigned a separable slot; and

(ii) transmits TX information to the base station and the secondary station on the selected frequency in respective ones of said n assigned transmit slots, the receiver receiving base station synchronization information to synchronize a transmit and reception timing of the telecommunication station to the base station; and

a receiver which receives RX information from the base station and the secondary station on the selected frequency in respective ones of said n assigned reception slots and receives synchronization information from the base station, the receiver receiving base station synchronization information to synchronize a transmit and reception timing of the telecommunication station to the base station

wherein using the telecommunication station for communications between the base station and secondary station is transparent to the base station and secondary station, and the primary station and the secondary station itself detects a frame timing from received signals and aligns its transmitting frame timing accordingly; and

each of said plurality of secondary stations finds the transmissions and slots assigned to that secondary station.

16. A telecommunication system comprising the telecommunication station of claim 15 and a secondary station which includes:

(i) a secondary station receiver which receives the synchronization information from said telecommunication station, identifies the assignment of time slots on said selected frequency, and receives the TX information on the selected frequency in a respective one of said assigned transmit slots; and

(ii) a secondary station transmitter which transmits a signal carrying the corresponding RX information of m duplex telephonic communications on the selected frequency in m of said assigned reception slots.

17. A telecommunication station according to claim 15 wherein the secondary station is a subscriber unit which is positioned outside a communicating range of said base station at a remote location whereat direct communication with said base station can not be made.

18. A telecommunication station according to claim 15 wherein said transmitter and receiver are embodied in a radio.

19. A telecommunication station for communicating with a base station and a secondary station using wireless transmissions, the base station communicating with a plurality of stations, the telecommunication station comprising:

a transmitter which:

(i) transmits telecommunication station synchronization information including the assignment of fixed periodic time slots to a plurality of subscriber units on a selected frequency, at least two fixed periodic transmit time slots for transmission from said telecommunication station and at least two fixed periodic reception time slots for reception by said telecommunication station, wherein the telecommunication station synchronization information enables a

transmit and receive timing of the secondary station to be synchronized to the telecommunication station, said assignment of time slots resulting in each of said plurality of subscriber units assigned a separable slot; and

(ii) transmits a signal carrying information received from the base station on the selected frequency in a first assigned transmit slot and carrying information received from the secondary station on the selected frequency in a second assigned transmit slot; and

a receiver which:

(i) receives the information transmitted from the base station on the selected frequency in a first assigned reception slot and base station synchronization information from the base station, wherein a timing of the secondary station is synchronized to the telecommunication station using the telecommunication station synchronization information; and

(ii) receives the information transmitted from the secondary station on the selected frequency in a second assigned reception slot; and

(iii) each of said plurality of secondary stations finds the transmissions and slots assigned to that secondary station;

wherein using the telecommunication station for communications between the base station and secondary station is transparent to the base station and secondary station, and the primary station and the secondary station itself detects a frame timing from received signals and aligns its transmitting frame timing accordingly.

20. A telecommunication station according to claim 19 wherein the secondary station is positioned outside a communicating range of said base station at a remote location whereat direct communication with said base station can not be made.

21. A telecommunication station according to claim 19 wherein said transmitter and receiver are embodied in a radio.

22. A telecommunication system according to claim 11 wherein the secondary station is one of a plurality of secondary stations and the primary station communicates between each of the plurality of secondary stations and the base station using a plurality of available frequencies including the selected frequency.

23. A telecommunication system according to claim 22 wherein each available frequency has a same time slot format and time synchronization as the selected frequency.

25. A telecommunication system according to claim 11 wherein the primary station.

26. A telecommunication station according to claim 15 wherein the secondary station is one of a plurality of secondary stations and the telecommunication station communicates between each of the plurality of secondary stations and the base station using a plurality of available frequencies including the selected frequency.

27. A telecommunication station according to claim 26 wherein each available frequency has a same time slot format and time synchronization as the selected frequency.

29. A telecommunication station according to claim 15 wherein the primary station equalizes base station communications prior to retransmission to the secondary station.

30. A telecommunication station according to claim 19 wherein:

the secondary station is one of a plurality of secondary stations and the telecommunication station communicates between each of the plurality of secondary stations and the base station using a plurality of available frequencies including the selected frequency; and

each available frequency has a same time slot and time synchronization as the selected frequency.

31. A telecommunication station according to claim 19 wherein the primary station equalizes base station communications prior to retransmission to the secondary station.

32. A telecommunication system according to claim 11 wherein the secondary station is capable of receiving the base station synchronization information and synchronizing to the base station.